I claim:

Sub A1 1. An apparatus for treating sleep apnea in a patient comprising:

a gas source adapted to selectively provide breathable gas to the patient under pressure;

a flow sensor adapted to sense the flow of air breathed by the patient and to generate a flow signal indicative of said gas flow;

an obstruction detector coupled to said flow sensor, said obstruction detector including a weight assigning member arranged to assign several weighting factors to portions of said flow signal and to generate an obstruction signal; and

a controller arranged to control the operation of said gas source and coupled to said flow sensor, said controller receiving said obstruction signal and altering the operation of said gas source in response to said obstruction signal.

2. The apparatus of claim 1 wherein said flow signal includes a section corresponding to a single breathing cycle and wherein said portions are selected from said section.

3. The apparatus of claim 1 wherein said flow sensor includes a sampler that generates flow samples and wherein said weight assigning member is adapted to assign a weighting factor for each sample.

4. The apparatus of claim 3 wherein said samples have amplitudes and said weight assigning member assigns said weighting factors to said samples in accordance with said amplitudes.

5. The apparatus of claim 4 wherein said samples have time positions and said weight assigning member assigns said weighting factors based on said time positions.

6. An apparatus for monitoring or treating a patient having sleep disorder, said apparatus comprising:

a flow sensor to generate a flow signal indicative of the patient's respiration; and

an obstruction detector coupled to said flow sensor and adapted to determine a weighted average signal, said weighted average signal being dependent on a weighted average of said flow signal in accordance with one of an amplitude and a time position of portions of said flow signal, said obstruction detector including a signal generator that generates a signal indicative of an airway obstruction based on said weighted average signal.

7. An apparatus for treating a patient having sleep disorder, said apparatus comprising:

a mask;

a gas source selectively supplying breathable air to said mask under pressure for the patient;

a flow sensor to generate a flow signal indicative of the patient's respiration;

an obstruction detector coupled to said flow sensor and adapted to determine a weighted average signal, said weighted average signal being dependent on a weighted average of said flow signal in accordance with one of an amplitude and a time position of portions of said flow signal; and

a controller receiving said obstruction signal and generating in response a command for activating said gas source.

8. The apparatus of claim 7 wherein said obstruction detector includes a comparator adapted to compare said weighted average signal to a threshold, said comparator generating said obstruction signal.

9. The apparatus of claim 7 wherein said flow sensor includes a sampler that senses samples of a single breathing cycle and wherein said obstruction detector includes a weight assigning member that assigns a weighting factor to each sample.

10. The apparatus of claim 9 wherein each sample has an amplitude and wherein said weight assigning member assigns said weighting factor based on said amplitude.

11. The apparatus of claim 10 wherein said weight assigning member assigns said weighting factor based on whether said amplitude is above or below a predetermined value.

12. The apparatus of claim 11 wherein said weight assigning member assigns a first weighting factor to samples having amplitudes lower than said predetermined value and second weighting factors to samples having amplitudes higher than said predetermined level.

13. The apparatus of claim 12 wherein said first weighting factor is smaller than said second weighting factor.

14. The apparatus of claim 9 wherein each sample has a time position and wherein said weight assigning member assigns said weighting factor based on said time position.

15. The apparatus of claim 14 wherein said weight assigning member assigns said weighting factor based on whether said time position is before or after a predetermined position.

16. The apparatus of claim 15 wherein said weight assigning member assigns a first weight to samples having time positions before said predetermined positions and second weighting factors to samples having time positions after said predetermined position.

17. The apparatus of claim 16 wherein said first weighting factor is smaller than said second weighting factor.

18. The apparatus of claim 9 wherein said flow signal includes a section corresponding to a single breathing cycle and wherein said sampler samples a portion of said section.

19. The apparatus of claim 18 wherein said section corresponds to an inspiration period.

20. The apparatus of claim 19 wherein said sampler samples a midportion of said inspiration period.

21. A method of detecting an obstruction in the airway of a patient, said method comprising:

measuring an air flow of the patient;

detecting a predetermined section of said air flow;

assigning weighting factors to portions of said predetermined section;

determining an index value from said predetermined section based on said weighting factors as a measure of the obstruction.

22. The method of claim 21 wherein said portions represent a midportion of inspiration.

23. The method of claim 21 further comprising assigning weighting factors to said portions based on their amplitudes.

24. The method of claim 21 further comprising assigning said weighting factors based on their time positions.

25. The method of claim 21 further comprising assigning a first weighting factor to portions having amplitudes below a predetermined value and assigning a second weighting factor to portions having amplitudes above said predetermined value.

26. The method of claim 25 further comprising setting said first weighting factor to be lower than said second weighting factor.

27. The method of claim 21 further comprising assigning a first weighting factor to said portions having time positions before a predetermined position and second weighting factors other said portions having time positions after said predetermined position.

28. The method of claim 27 wherein said first weighting factor is smaller than said second weighting factor.

29. The method of claim 21 further comprising generating said index value from a weighted mean of said predetermined section.

30. The method of claim 29 wherein said weighted mean is the sum of the weighted absolute difference of the said portions divided by the product of a mean of the predetermined section and the duration of said portions.

31. A method of treating a person with sleep apnea comprising the steps of:

determining an air flow signal indicative of the air flow of the patient;

sampling a section of said air flow during successive breathing cycles to obtain a set of samples for a breathing cycle;

assigning a weight to each sample;

generating an obstruction signal based on said weights and said samples from said set of samples; and

applying a CPAP therapy to the patient when an obstruction is indicated by said obstruction signal.

32. The method of claim 31 wherein said set of samples comprises samples from a midportion of inspiration.

33. The method of claim 32 further comprising the step of generating an average of said midportion samples.

34. The method of claim 33, wherein each sample has an amplitude, further comprising the step of selecting a first weighting factor for samples having an amplitude below a predetermined threshold value and a second weighting factor for samples having an amplitude above said predetermined threshold value.

35. The method of claim 34 wherein said first weighting factor is smaller than said second weighting factor.

36. The method of claim 34 wherein said predetermined threshold value is a mean of said flow signal.

37. The method of claim 33, wherein each sample has a time position, further comprising the step of selecting a first weighting factor for samples having time positions prior to a predetermined time position and selecting a second weighting factor for samples having time positions after said predetermined time position.

38. The method of claim 37 wherein said first weighting factor is smaller than said second weighting factor.

39. The method of claim 37 wherein said predetermined time position is a central point of said midportion.

40. The method of claim 32 wherein said obstruction signal represents the sum of the weighted absolute difference of the said samples from a midportion of inspiration divided by the product of a mean of the set of samples and the duration of said midportion.